Technical Review Comments

Draft Feasibility Study Report
Pierson's Creek Superfund Site – Operable Unit 2
Newark, New Jersey

CDM Smith has completed reviewed the Draft Feasibility Study (FS) Report prepared by Geosyntec Consultants (Geosyntec) dated November 2020 for the Pierson's Creek Superfund Site, Operable Unit 2 (OU-2), located in Newark, New Jersey. Below are general and specific comments on the various report sections, including the text, tables, figures, and appendices.

General Comments

1. Revise the Feasibility Study (primarily Section 2) to incorporate relevant EPA comments on the remedial investigation (RI) Report - Revision 2 for Operable Unit 2 (OU-2).

2. The remedial action objectives (RAOs) provided by EPA on June 29, 2020 should be used.

3. The site-specific risk based preliminary remediation goals (PRGs) have not yet been approved by EPA and NJDEP. The shallow soil remediation areas (SRAs) should be updated based on EPA and NJDEP approved PRGs for all contaminants.

4. Revise the report to incorporate the February 7, 2020 comments provided by EPA and NJDEP on the Identification of Candidate Technologies and Development and Screening of Remedial Alternatives Memorandum – Revision 1 (CT/DSRAM). For example, comments provided on Tables 5-1 through 5-3 of the CT/DSRAM have not been incorporated in Table 3-7 through 3-9 of the Draft FS Report.

5. NJDEP Groundwater Quality Standards (GWQS) are promulgated chemical-specific ARAR and should be used to develop the PRGs. Revise the list of groundwater COCs to include all contaminants in groundwater at concentrations greater than the NJDEP GWQS. Develop PRGs for each of these COCs related to this site, and alternatives to achieve these PRGs. Classification Exception Area (CEA) is an institutional control to address this ARAR and requires demonstration of contamination reduction over time either through monitored natural attenuation or through active treatments.

6. Even though mercury in shallow groundwater does not pose human health risks, it exceeded the NJDEP GWQS. Impact to shallow groundwater by shallow soil contamination, such as the high mercury concentration at the southeast corner, has resulted in elevated mercury concentrations in groundwater and could migrate off-site. The plan to address the mercury contamination serving as the source for groundwater contamination should be discussed.

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7. Remove the use of scales to grade the alternatives.

8. There are editorial errors throughout the document that can result in misinterpretation of the meaning of the technical content. Perform an editorial review of the document.

9. The RAOs, PRGs, and remedial alternatives are all tied together in an FS. If remedial alternatives are to be evaluated for a medium, RAOs and PRGs must be identified for that medium in order to determine effectiveness of that remedial alternative (e.g. effectiveness in achieving the RAOs and PRGs). For example, remedial alternatives are presented for indoor air, but no RAO(s) or PRG(s) have been defined for indoor air. Revise the FS to include RAOs and PRGs for all media and COCs that are addressed by the presented remedial alternatives.

Specific Comments

1. Page 8, Section 2.3.3.1 Shallow Groundwater, first paragraph, last sentence: Provide a citation for the New Jersey regulation that the minimum depth below ground surface for a supply well screen is 50 feet bgs. Also add the citation to the second paragraph on page ES-2, where it references the same regulation.

2. Page 8, Section 2.3.3.1 Shallow Groundwater, second paragraph, last sentence: Change the last sentence to read, "This indicates that shallow groundwater from the southern portion of the Albert Steel Drum (ASD) Site may have flowed onto the Troy property or towards the UT in the past, prior to the filling of the ditch on the ASD property in 2003 and installation of the box culvert in 2008 by the City of Newark."

3. Page 9, Section 2.4.1 Concrete Ditch and Culvert Material, third paragraph, last sentence: Remove this sentence. As noted in the RI Report, Revision 2 comments, there is limited data available on concentrations in soil below the concrete ditch and culvert, and because there is evidence that the structural integrity of the concrete ditch and culvert is compromised, it is likely that elevated concentrations are present in other areas below the ditch.

4. Page 10, Section 2.4.2 Shallow Soil, first paragraph, fourth sentence: As previously indicated in the RI Report, Revision 2 comments, the FS references data provided by a New Jersey Department of Environmental Protection (NJDEP) Technical Guidance on Historic Fill from 2008. That version of the guidance document has been replaced with a more recent version (2013) that does not contain ranges of metals commonly associated with historic fill. Provide other information or data that supports the expected ranges of contaminants that are present in historic fill at the site.

5. Page 12, Section 2.5 Fate and Transport, fourth paragraph, third sentence: Change the sentence to read "The shallow groundwater at OU-2 may be downgradient of portions of the ASD Site, which has a CEA for arsenic in its shallow groundwater (NJDEP 2020)." The text should also note that Supplemental Remedial Investigation Report and Remedial Action Work Plan for AOC-10 Groundwater, at the former Albert Steel Drum Site (JPM LLC 2020) indicates that the arsenic and volatile organic compound groundwater plumes on the site

are migrating to the northeast consistent with the groundwater flow direction at the ASD site.

6. Page 12, Section 2.5 Fate and Transport, fourth paragraph, penultimate sentence: Remove this sentence as it has not been supported here or previously within the RI Report.

7. Page 14, Section 3.1 Remedial Action Objectives: RAO is not developed for indoor air. Adding an RAO for indoor air as following:

    a. Reduce indoor air contaminant concentrations below the PRGs to protect human health.

8. Page 15, Section 3.2 Applicable or Relevant and Appropriate Requirements, third paragraph: It is agreed that MCLs established under the SDWA are not applicable because the groundwater is not currently used as a drinking water supply. However, MCLs should be classified as relevant and appropriate. The goal of the Superfund program is to restore groundwater to its beneficial use. As stated on Page 8, Section 2.3.3.1 Shallow Groundwater, NJDEP has classified shallow and deep groundwater at OU2 as Class IIA aquifers. As such, the beneficial use of groundwater at the site is potable water. Per CERCLA Compliance with Other Laws Manual: Interim Final (EPA 1988), MCLs are the probable relevant and appropriate Federal standards for aquifers with Class I and II characteristics.

    If the groundwater could not be used for drinking water because of high salinity or widespread *naturally* occurring contamination, the MCLs would not be relevant and appropriate (EPA 1988). However, because the groundwater contamination at the site is not naturally occurring, MCLs are relevant and appropriate. If it is technically impracticable to achieve MCLs in shallow and deep groundwater at the site an ARAR-waiver could be pursued. Because Federal MCLs and NJDEP GWQS are chemical-specific ARARs, they should be considered during PRG development.

9. Page 15, Section 3.3 Preliminary Remediation Goals: In accordance with EPA's "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (EPA 1988), revise development of the PRGs to include consideration of chemical-specific ARARs, in addition to site-specific risk related factors. Develop PRGs for all contaminants present at concentrations greater than the chemical-specific ARARs since a threshold criterion for evaluation of remedial alternatives is compliance with ARARs.

10. Page 16, Section 3.3.1, first paragraph, penultimate sentence: It is unclear what is meant by the statement that ARARs governed the PRGs when they prevailed over the calculated risk-based PRGs. Explain what "prevails" means in this context.

11. Page 16, Section 3.3.2 Concrete Ditch and Culvert Material, first paragraph, third sentence: The text states: "a PRG-based, chemical-specific approach is not pursued in evaluating remedial alternatives for the concrete ditch and culvert material. Rather, a wholistic approach that addresses the exposure to contamination in the concrete ditch and culvert material is followed in development and detailed/comparative evaluation of the remedial

alternatives." Revise this section to include the PRGs developed for concrete ditch and culvert material in Table C-8. Explain what "a wholistic approach" entail to define the boundary of Concrete Ditch and Culvert Material for remediation.

12. Page 17, Section 3.3.3 Shallow Soil, first paragraph: The mercury PRG for shallow soil was based on total mercury being inorganic mercury. This assumption is not supported. Provide rationale for not basing development of the PRG on the assumption that mercury is elemental mercury, which results in a more conservative PRG. The PRG should be conservative to ensure protection of human health. Revise the PRG to be based on the assumption that total mercury is elemental mercury given that elemental mercury and organo-mercuric complexes (both of which would result in a more conservative PRG) were handled on the site.

13. Page 17, Section 3.3.3 Shallow Soil, second paragraph: The text states that the applicable ARARs for shallow soils are the NJDEP non-residential direct contract soil remediation standards (NRDC-SRS), which are lower than the PRGs selected in the first paragraph. Further justification is needed for why an alternative soil remediation standard is being used for mercury, when there is an applicable, chemical-specific ARAR available (NJNRDC-SRS). Explain if NJDEP has approved the use of site-specific alternative soil remediation standards per NJDEP N.J.A.C. 7:26D.

14. Page 17, Section 3.3.4 Shallow Groundwater, first paragraph: Appendix C includes PRGs for benzene, chloroform, 1,2-dichloropropane, ethylbenzene, and vinyl chloride in shallow groundwater for indoor facility worker (vapor intrusion). Explain why these PRGs were not used for shallow groundwater.

15. Page 17, Sections 3.3.4 Shallow Groundwater and 3.3.5 Deep Groundwater: Although shallow and deep groundwater are not currently used for drinking purposes, both are classified as Class IIA groundwater. Establishing a CEA will require comparison of site-specific groundwater contaminant concentrations with NJDEP GWQS. NJDEP GWQS are applicable chemical-specific ARARs and should be included as PRGs for site shallow and deep groundwater. Additionally, the third RAO listed under shallow/deep groundwater states: "Reduce concentration of site-related contamination in the shallow and deep groundwater to remediation goals to the extent practicable." This RAO indicates the need to establish PRGs. Revise the text to include development of PRGs for all COCs in these two media.

16. Page 18, Section 3.4.1 Concrete Ditch and Culvert Material: Include an evaluation and discussion of whether the material in the concrete ditch and culvert should be considered principal threat waste. In the evaluation, consider EPA's "A Guide to Principal Threat and Low Level Threat Wastes" (November 1991).

17. Page 19, Section 3.4.2 Shallow Soils, second bullet: This bullet appears to indicate that soil containing mercury concentrations greater than the PRGs are not included in the remediation areas if the soil is not accessible for remediation. While these areas might not

be available for active remediation now (foundations and slabs are preventing access), these buildings and slabs might be removed in the future if there is a change in use of the property, thus there is potential for future exposure and human health risks. All areas (including areas below buildings) with known exceedance of PRGs should be identified. Revise the remediation areas to include all areas that require remediation, both passive and active forms of remediation. Inspection and monitoring must be performed of all covered areas (including building slabs) to prevent future exposure.

18. Page 19, Section 3.4.3 Shallow Groundwater, bulleted items: The two bullet items regarding grouping SRAs indicate that active remediation may be used for Group 1 but not for Group 2. However, the rationale for grouping the SRAs only based on levels above or below the risk-based mercury PRG for construction workers is not fully justified. Based on Appendix C-5 for construction workers, the risk-based PRGs for lead and arsenic are 460 mg/kg and 150 mg/kg, respectively. Table 3-5 shows SRAs in Group 2 (such as SRA-1, SRA-3, and SRA-4) would pose risk to construction workers due to lead or arsenic. Revise the grouping methodology for shallow soil or revise the rationale for grouping.

19. Page 20, Section 3.4.3 Shallow Groundwater, last paragraph: The text states that benzene in MW-17 could be due to migration from the MW-02 area and the concrete ditch and culvert material. MW-17 is far from MW-02 with intervening wells that have lower benzene concentrations. It is more plausible that benzene in MW-17 is due to migration of high benzene contamination in the concrete ditch and culvert. Revise the text as necessary.

20. Page 20, Section 3.4.3 Shallow Groundwater: Develop PRGs for all COCs in shallow groundwater based on NJDEP GWQS to support the modification of the CEA at the site for this medium.

21. Page 20, Section 3.4.4 Deep Groundwater: PRGs for deep groundwater should be based on NJDEP GWQS and the PRGs should be used to evaluate achievement of the RAOs and to support evaluation of remedial technologies and alternatives (presented in Section 3.6.2.1). These PRGs could also be used to support the establishment of a CEA at the site for this medium. Create PRGs for deep groundwater, and revise the text accordingly.

22. Page 21, Section 3.4.4 Deep Groundwater, first paragraph, penultimate sentence: Delineation of the groundwater contamination at MW-02D has not been performed. Revise this statement as follows: "….at similar levels in other deep groundwater wells, it is assumed that DGRA 1 is limited to the vicinity of MW-02D."

23. Page 21, Section 3.5 Indoor Air: This feasibility study report will be a stand-alone document. Include general response actions (GRAs) for the concrete ditch and culvert material, shallow soil, and shallow groundwater in this report. Consider EPA and NJDEP comments provided February 7, 2020 on the CT/DSRAM when incorporating this information.

24. Page 24, Section 3.6 Candidate Technologies: This feasibility study report will be a stand-alone document. Include the identification and evaluation of candidate technologies for

remediation of the concrete ditch and culvert material, shallow soil, and shallow groundwater in this report. Consider EPA and NJDEP comments provided February 7, 2020 on the CT/DSRAM when incorporating this information.

25. Page 24, Section 3.6.1 Identified Candidate Remedial Technologies, last bullet, "Effectiveness": Add the following to the end of the first sentence: "…and PRGs."

26. Page 25, Section 3.6.2.1 Deep Groundwater: Revise the effectiveness evaluation to consider the potential presence of DNAPL in deep groundwater. Revise Table 3-10 as necessary.

27. Page 26, Section 3.6.2.3 Potential Future Sub-Slab Vapor: Revise the first sentence to replace "indoor air" with "potential future sub-slab vapor."

28. Page 26, Section 3.6.2.3 Potential Future Sub-Slab Vapor, second paragraph, first sentence: The sentence is incomplete and unclear. The sentence seems to indicate that ICs include "restrictions on new construction to interrupting the completion of the indoor inhalation pathway." This does not align with information presented on Table 3-12. Second sentence is also long and confusing. Revise the text for clarity and for consistency with Table 3-12.

29. Page 27, Section 4 Development and Screening of Remedial Alternatives: Common elements are presented for each media. The first statement in each of these sections indicates that these elements are common to "each remedial alternative" for the medium discussed. However, by definition, the common elements are not included in the No Action alternative. Revise the text in each of the common elements section to note this.

30. Page 28, Section 4.2.1.3, Alternative M2: Figure 2-4 indicates that there is a section of collapsed wall in the culvert; this collapsed portion provides a pathway for migration of contamination into the shallow groundwater. Revise this alternative to include improvements of this section of the wall.

31. Page 29, Section 4.2.1.4 Alternative M3, first bullet: The text states that "improving the gabion wall sections of the concrete ditch and culvert as described in Alternative M2." However, based on Appendix F cost estimates, the improvement under Alternative M3 is less than Alternative M2. The text should reflect the difference.

32. Page 29, Section 4.2.1.4 Alternative M3: The alignment of the vertical barrier wall at the property boundary would not prevent migration of the contamination to surrounding media since it would be located far from the concrete ditch and culvert. With the proposed alignment, the vertical barrier wall would address groundwater, not the concrete ditch and culvert material. Given the proposed alignment for the vertical barrier wall, it should be considered as an alternative for shallow groundwater throughout the report. Additionally, revise the description of the alternative to include consideration for managing groundwater inside and outside the barrier wall given the shallow groundwater table at the site and the frequent incidence of flooding.

33. Page 29, Section 4.2.1.4 Alternative M3: Vertical barrier wall construction requires that a level work platform be established along the wall alignment to accommodate wall construction activities. Figure 4-2 shows approximately a 20-foot clearance east of Building 61. Revise the discussion of this alternative to include consideration and discussion of how space limitations may impact the vertical barrier wall (VBW) remedial alternative.

34. Page 29, Section 4.2.1.4 Alternative M3: Figure 4-2 seems to indicate that the subsurface drain would be installed off of the Troy Chemical property. If this is intentional, revise this section to note that access to this other property would be required to install the drain. If this is not intentional, revise the figure.

35. Page 30, Section 4.2.1.4 Alternative M3, second paragraph, penultimate sentence: The sentence states: "The shallow groundwater level within the VBW alignment would be maintained a minimum of one foot or below from the top of the wall to prevent overtopping." The shallow groundwater level within the VBW should be maintained lower than the water level outside the VBW to maintain an inward groundwater gradient to the site. Revise the text accordingly.

36. Page 30, Section 4.2.1.5 Alternative M4, first bullet: The first sentence in this bullet indicates that an engineered containment system would be constructed to the extent practicable. An engineering containment structure is only a containment structure if it fully contains what it is meant to contain. The "to the extent practicable" phrase implies that a containment structure might not be possible. Revise the description of this alternative to remove the "to the extent practicable" phrase or provide a full explanation of what this phrase means in terms of the proposed alternative. If it means that the alternative will not achieve full containment, explain why the alternative would not be expected to achieve full containment.

37. Page 31, Section 4.2.1.5 Alternative M4, first paragraph: Revise the description of the alternative to indicate how water collected from the drainage layer will be handled, treated, and discharged.

38. Page 31, Section 4.2.2 Remedial Alternatives for Shallow Soil: A number of technologies are retained in Table 3-8. However, not all retained technologies are included in the remedial alternatives for shallow soil. Resolve this inconsistency.

39. Page 32, Section 4.2.2.1 Common Elements, Institutional Controls, second paragraph: The use of the word debrief in this sentence is incorrect; therefore, the administrative measures to be taken are not clear. Revise the discussion of administrative measures to indicate that the administrative measures are recommended as part of this remedial technology.

40. Page 33, Section 4.2.2.3 Alternative S2, second paragraph, second sentence: Insert "and/or" between replacement and repair. Revise discussion of this alternative to indicate how repairs to existing pavement would be made.

41. Page 33, Section 4.2.2.4 Alternative S3: Revise discussion of the alternative to present the following:

    a. How water from dewatering would be handled, treated, and discharged

    b. Whether the excavated soil is anticipated to be hazardous or nonhazardous and what type of management it would require

    c. Whether pavement would be placed over the clean backfill (as this influences evaluation of remedial technologies for other site media)

42. Page 34, Section 4.2.3 Remedial Alternatives For Shallow Groundwater: As stated in Section 4.2.3.3, "in aerobic portions of the shallow groundwater, microbial oxidation [of benzene] occurs rapidly." Revise the report to evaluate biosparging as a candidate technology for shallow groundwater as this would address benzene contamination.

43. Page 34, Section 4.2.3.1 Common Elements, Institutional Controls: Provide the NJDEP 2020 reference for the current CEA in an appendix to the FS Report.

44. Page 34, Section 4.2.3.1, Institutional Controls: A CEA is proposed to achieve the RAO regarding unacceptable risks to human health for a wide variety of contaminants. However, Section 3.4.3 indicates that only benzene is a COC. Revise the list of shallow groundwater COCs to resolve this inconsistency.

45. Page 34, Section 4.2.3.1, Institutional Controls, last sentence: This sentence states that the CEA contributes to the successful achievement of the RAOs for groundwater. There are three RAOs for shallow groundwater and only one addresses unacceptable risks to human health that would be reduced by the implementation of a CEA. Therefore, this statement is incorrect. Revise the statement accordingly.

46. Pages 34, Section 4.2.3.1 Common Elements, Operation and Maintenance Plan: The O&M plan should include the analytical parameters to be collected to support monitored natural attenuation. This comment also applies to Page 38, Section 4.2.4.1 Common Element, Operation and Maintenance Plan.

47. Page 35, Section 4.2.3.3 Alternative SG2, last paragraph in this section, first sentence: The sentence indicates that, given the present data, it cannot be confirmed that conditions in the shallow groundwater are favorable to support natural attenuation. When sufficient evidence is not available to support MNA as a remedial alternative, this technology should be screen out in technology screening due to lack of effectiveness. Multiple groundwater sampling events have been performed. Provide an evaluation of that data here to indicate whether MNA can be effective as a remedial alternative (e.g. decreasing trends in contaminant concentrations). Same apply to Alternative SG3.

48. Page 35, Section 4.2.3.3 and Section 4.2.3.4, Alternatives SG2 and SG3: Revise the text to indicate whether the installation of additional monitoring wells would be needed to support the MNA evaluation.

49. Page 38, Section 4.2.4.3 Alternative DG2 – MNA of DGRA 1, first bullet, last sentence: The text states: "For the purposes of this feasibility analysis, it is assumed that the long-term rate of natural processes is sufficient to achieve significant mass reduction over time, meeting the RAO for deep groundwater." It is premature to assume there will be significant mass reduction without collecting additional data and performing a comprehensive evaluation. Both PCE and TCE concentrations are high, there could be residual contamination from the meadow mat and the ditch and culvert serving as sources for contamination in deep groundwater. The destructive mechanism would require organic carbon which may be very limited in deep groundwater. Therefore, assuming significant mass reduction under natural conditions is premature. Remove this statement and remove this consideration from the evaluation of remedial alternatives.

50. Page 39, Section 4.2.4.3, last paragraph above Section 4.2.4.4. This paragraph also indicate that there is no sufficient evidence for MNA in deep groundwater. The text should be revised and MNA alone for deep groundwater as an alternative should be screened out.

51. Page 42, Section 4.2.5 Remedial Alternatives for Indoor Air: Institutional controls were retained as a technology for indoor air; however, institutional controls are not presented in this section. Resolve this inconsistency.

52. Page 43, Section 4.3 Screening of Remedial Alternatives, Effectiveness: The definition of the effectiveness criterion indicates that short-term effectiveness is considered in this evaluation. However, there is no discussion of short-term effectiveness for the alternatives. Revise the effectiveness screening of each alternative to include consideration of short-term effectiveness.

53. Page 45, Section 4.3.1.2 Alternative M2, Implementability: The challenges for improving the Gabion Wall should be discussed, including, but not limited to, proximity to existing buildings; available space for staging equipment (such as large equipment needed for jet grouting); volume decrease after the improvement for holding the ditch and culvert material; and replacement of the Gabion walls with concrete walls in a shallow groundwater table.

54. Page 45 and 46, Section 4.3.1.2 and Section 4.3.1.3 Alternatives M2and M3, Implementability: Revise the discussion of implementability to consider flooding and the presence of shallow groundwater at the site.

55. Page 46, Section 4.3.1.3 Alternative M3, Implementability: Revise the text to discuss the implementability of installing a vertical barrier wall along the exterior property boundary given considerations for the work platform and potential for obstructions and a subsurface drain on another property (as it appears on Figure 4-2).

56. Page 47, Section 4.3.1.4 Alternative M4, Implementability:

    a. Bullet 1: The text seems to indicate that there is a plan for plant expansion. Provide additional discussion regarding plant expansion being considered to facilitate the discussion on how the impact of implementing Alternative M4 could be mitigated.

    b. Bullet 4: Area of Contamination (AOC) policy is appropriate for Alternative M4 instead of Corrective Action Management Unit (CAMU) and Land Disposal Restrictions (LDR). Discuss the anticipated applicability of these waste management regulation for implementation of Alternative M4.

57. Page 58, The cost estimate shall follow EPA's RI/FS guidance cited and EPA's Guide to Developing and Documenting Cost Estimates During the Feasibility Study (EPA 540-R-00-002 (July 2000). Review and update as necessary.

58. Page 59, Section 5.1 Introduction, second main bullet, balancing criteria: Contamination will be left in place, therefore, O&M of at least 30 years should be used per EPA RI/FS guidance. Also, the construction cost and O&M cost for each alternative should be listed under the cost section for each alternative.

59. Page 60, Section 5.2.2.2 Compliance with ARARs, Page 63, Section 5.2.3.2 Long-term Effectiveness and Permanence, Page 65, Section 5.2.4.2 Compliance with ARARs: For compliance with chemical-specific ARARs, add a bullet that contaminant concentrations would remain above the chemical-specific ARARs and PRGs and are addressed through containment.

60. Page 61, Section 5.2.2.5. Short-term Effectiveness, second sentence: The text states: "During implementation, concrete ditch and culvert material is not moved outside the concrete ditch and culvert". Provide estimated volume of ditch and culvert material that would need to be moved to allow Gabion Wall improvement for comparison.

61. Page 63, Section 5.2.3.3 Long-term Effectiveness and Performance, first paragraph: "The VBW and cover system would be designed to ensure that the shallow groundwater within the VBW does not overtop the VBW." Revise the text to indicate that the water level within the VBW should be lower than the water outside the VBW to create an inward gradient and minimize groundwater mounding inside the VBW.

62. Page 63, Section 5.2.3.3 Long-term Effectiveness and Performance, last paragraph: The O&M for the VBW should include inspection and maintenance of the upgradient subsurface drain, to ensure that the upgradient area would not be flooded in the long-term.

63. Page 64, Section 5.2.3.6 Implementability: Discuss the existing utilities along the perimeter of the plant where the VBW is proposed including potential utility relocation and/or temporary shut down for VBW installation, and the staging area needed to install the VBW.

64. Page 69, Section 5.3.2.2 Compliance with ARARs and Page 71, Section 5.3.3.2 Compliance with ARARs:

    a. For chemical-specific ARARs, add a bullet: "Shallow soil contamination with concentrations greater than the PRGs is addressed through surface covers.

    b. For action-specific ARARs, add how remedial action will be performed in compliance with other action-specific ARARs, such as dust control and TSCA regulation.

65. Page 71, Section 5.3.3.3 Long-term Effectiveness and Performance: The sentence "Excavation and off-site disposal of Group 1 SRAs permanently addresses shallow soils with COC concentrations exceeding future construction worker exposure pathway." is not correct. While it would address mercury concentrations exceeding future construction worker exposure pathway, lead and other contamination in Group 2 would still pose human health risks to construction workers. Revise the text indicates that remaining contaminants would still pose human health risks to construction worker if intrusive works are performed.

66. Page 87, Section 5.8.1 Comparative Analysis of Concrete Ditch and Culvert Material Alternatives, Short-Term Effectiveness: Alternative M3 would involve construction around the entire perimeter of the plant and would not necessarily have less short-term effectiveness than Alternative M4. Provide estimated construction durations for Alternatives M2, M3, and M4.

67. Page 88, Section 5.8.1 Comparative Analysis of Concrete Ditch and Culvert Material Alternatives, Implementability: Revise the text to include a discussion of Challenges for implementing M3 due to limited space, active utilities, and the large area of disturbance.

68. Page 88, Section 5.8.1 Comparative Analysis of Concrete Ditch and Culvert Material Alternatives, last paragraph: Long-term effectiveness and permanence is an important criterion. The text should indicate that Alternative M2 provides less long-term effectiveness and permanence than M3 and M4

69. Page 93, Section 5.9 Comparison of Potential Combined Alternatives: Remove this section (including Table 5-8) from the FS report; EPA will determine how remedial alternatives will be combined.

Tables

70. Table 2-1 Summary of OU-2 Contaminants of Concern: Expand the list of contaminants of concern to include all contaminants present at the site at concentrations greater than chemical-specific ARARs.

71. Table 3-1 Location-Specific ARARs: Specify where the floodplain, flood hazard areas, and riparian zones are at the OU2 site on a figure. A figure showing the FEMA flood map would be useful to determine how this ARAR may influence remedial actions.

72. Table 3-1 Location-Specific ARARs: The reference to 40 CFR Part 6, Appendix A should include wetlands protection as well as floodplain management. In addition, 40 CFR Part 6, Appendix A contains policy and guidance for carrying out the provisions of Executive Orders 11988 and 11990. These executive orders should be listed as ARARs. The National Wetlands Inventory identifies the area immediately surrounding Pierson's Creek as Estuarine and Marine Deepwater habitat classified as E1UBLx.

73. Table 3-2 Chemical-Specific ARARs: Soil Regional Screening Levels are not ARARs. They should be listed as a TBC.

74. Table 3-2 Chemical-Specific ARARs: See Specific Comment No. 8. Federal MCLs are relevant and appropriate.

75. Table 3-2 Chemical-Specific ARARS: See General Comment No. 5. NJ GWQS are relevant and appropriate.

76. Table 3-4 PRGs for Shallow Soils: the NJDEP Non-Residential Direct Contact Standards are promulgated standards and should be included as ARARs for PRG development. Application for development and use of risk-based PRGs as alternative soil remediation standards should be submitted to NJDEP for approval.

77. Table 3-4 PRGs for Shallow Soils: This table uses the higher value between NJDEP NRDC-SRS and site-specific risk based PRGs. A consistent approach using either NJDEP NRDC-SRS or site-specific risk based PRG should be provided and justified for each contaminant.

78. Table 3-5 SRA Details: As organized, the table is confusing. Although depths and areas are provided for all SRAs, volumes are calculated for some, but not all the SRAs. If this is because certain areas/volumes are not proposed for remediation, include an explanation in the table. Additionally, see comments on Section 3.4.2.

79. Table 3-5 SRA Details: Add a column to the table indicating whether the area is currently under a cover and the type of existing cover.

80. Table 3-5 SRA Details, row "SRA1", column "Rationale": The purpose of the second sentence in the cell is not clear. Revise the table to indicate relevance or remove the statement. Additionally, no range of historic fill is provided for any of the contaminants on this table. Remove this statement to align with revisions to be made to the RI Report.

81. Table 3-5 SRA Details, row "SRA3", column "Rationale": The text in this cell does not provide any rationale. Revise the text in the cell for clarity.

82. Table 3-5 SRA Details, row "SRA11", column "Mercury": Based on the PRGs provided on this table, this cell should not be highlighted. Revise as necessary.

83. Table 3-6. Periodic monitoring could be used for all OU-2 media.

84. Table 3-7 Candidate Technologies Identified for OU-2 - Concrete Ditch and Culvert Material, Surface Covers: Under column "Notes", "and building foundations" not a complete sentence.

85. Table 3-7 Candidate Technologies Identified for OU-2 - Concrete Ditch and Culvert Material, Surface Covers, Soil Vapor Extraction: While SVE is not effective in treating the mixture of contaminants present in the concrete ditch and culvert material, it would be effective in treating VOCs if combined with ex situ treatment of the extracted VOC vapors which have the potential to migrate to surrounding media via vapors. Revise the table to evaluate the option of using SVE to treat VOCs in the material and indicate why it would or would not be effective or implementable.

86. Table 3-8 Candidate Technologies Identified for OU-2 – Shallow Soils, Bioremediation, Notes: The notes discuss shallow groundwater. This should be a discussion of relevance to shallow soils. Revise the table accordingly.

87. Table 3-10, 3-11, and 3-12, Effectiveness: Section 3.6.1 (page 24) indicates that the effectiveness evaluation considered whether the technology can generally achieve RAOs. However, the evaluation presented on this table only considers whether the technology is effective in reducing concentrations of COCs which is only one of three RAOs presented for deep groundwater. Revise the effectiveness evaluation to consider all RAOs for deep groundwater. For example, effectiveness for ICs can indicate that ICs would be effective in preventing unacceptable human health risks associated with deep groundwater.

88. Table 3-10 Candidate Technologies Identified for OU-2 – Deep Groundwater, Institutional Controls, under Effectiveness: Revise the text to indicate what institutional controls would not be effective with regards to CVOCs.

89. Table 5-8 Comparison of Potential Combined Alternatives for OU-2: Remove this table from the report as EPA will determine combination of remedial alternatives.

Figures

90. Figure 4-2: The French drain appeared to stop at the northeast corner of Troy property. Discuss whether this configuration is sufficient to control flooding problems at WH&C and Globe Metals. The upgradient drain shall be designed, constructed, and maintained to not cause flooding issue for all neighboring properties.

91. Figure 4-2 indicates that the perimeter wall would be installed on Avenue L and cut through a storm drain. Add these in discussion of implementability of this alternative.

Appendices

92. Appendix E: For the section where the Culvert is narrower than the Concrete Ditch, consider widening the culvert into the same width as the Concrete Ditch to increase volume.

93. Appendix F:

a. The cost for improvement to the Ditch and Culvert under Alternative M2 and Alternative M3 are significantly different. The impact of the different engineering approaches to improve the Ditch and Culvert for Alternative M2 and M3 should be discussed in the text.

b. For M3, the 250 feet crushed stone/perforated pipe "curtain" drain for upgradient shallow groundwater control does not appear to be long enough to cover the upgradient side of property boundary. If the conveyance line is used to discharge the water in the "curtain" drain to an existing storm pipe, it should be clarified to demonstrate that the Vertical Barrier will not cause flooding of neighboring properties, not just the upgradient property.